

TABLE 4.1.RME
VALUES USED FOR DAILY INTAKE CALCULATIONS
REASONABLE MAXIMUM EXPOSURE
The Dean Company

Scenario Timeframe: Future
Medium: Groundwater
Exposure Medium: Groundwater

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/Reference	Intake Equation/Model Name
Ingestion	Resident	Adult	Aquifer 1 - Tap Water	CW	Chemical Concentration in Water	See Table 3.1	mg/l	See Table 3.1	Chronic Daily Intake (CDI) (mg/kg/day) = CW x IR-W x EF x ED x 1/BW x 1/AT
				IR-W	Ingestion Rate of Water	2	l/day	EPA, 1991	
				EF	Exposure frequency	350	days/year	EPA, 1991	
				ED	Exposure Duration	24	years	EPA, 1991	
				BW	Body Weight	70	kg	EPA, 1991	
	Child	Child	Aquifer 1 - Tap Water	AT-C	Averaging Time - Cancer	25,550	days	EPA, 1989a	
				AT-N	Averaging Time - Non-Cancer	8,760	days	EPA, 1989a	
				CW	Chemical Concentration in Water	See Table 3.1	mg/l	See Table 3.1	CDI (mg/kg/day) = CW x IR-W x EF x ED x 1/BW x 1/AT
				IR-W	Ingestion Rate of Water	1	l/day	EPA, 1989b	
				EF	Exposure frequency	350	days/year	EPA, 1991	
Dermal	Resident	Adult	Aquifer 1 - Tap Water	ED	Exposure Duration	6	years	EPA, 1991	Dermally Absorbed Dose (DAD) (mg/kg-day) = DA-event x EV x ED x EF x SA x 1/BW x 1/AT where for organic compounds, Absorbed Dose per Event (DA-event) (mg/cm ² -event) = 2 FA x Kp x CW x CF x SQRT(6 x tau-event x t-event/pi) or DA-event = FA x Kp x CW x ((t-event/(1 + B)) + 2 x tau-event x ((1 + (3 x B) + (3 x B x B))/(1 + B)2)) and where for inorganic compounds, DA-event = Kp x CW x CF x t-event
				SA	Skin Surface Area	18,000	cm ²	EPA, 2001	
				tau-event	Lag time per event	Chemical Specific	hours/event	EPA, 2001	
				t-event	Event Duration	0.58	hours/event	EPA, 2001	
				B	Ratio of permeability coefficient of a compound through the stratum corneum relative to its permeability coefficient across the viable epidermis	Chemical Specific	--	EPA, 2001	
				EV	Event Frequency	1	events/day	EPA, 2001	
				EF	Exposure Frequency	350	days/year	EPA, 2001	
				ED	Exposure Duration	24	years	EPA, 1991	

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Dermal (continued)	Resident (continued)	Adult (continued)	Aquifer 1 - Tap Water	CF	Volumetric Conversion Factor for Water	0.001	l/cm ³	--	
				BW	Body Weight	70	kg	EPA, 2001	
				AT-C	Averaging Time - Cancer	25,550	days	EPA, 2001	
				AT-N	Averaging Time - Non-Cancer	8,760	days	EPA, 2001	
		Child	Aquifer 1 - Tap Water	CW	Chemical Concentration in Water	See Table 3.1	mg/l	See Table 3.1	DAD (mg/kg-day) =
				FA	Fraction Absorbed Water	Chemical Specific	--	EPA, 2001	DA-event x EV x ED x EF x SA x 1/BW x 1/AT
				Kp	Permeability Constant	Chemical Specific	cm/hr	EPA, 2001	where for organic compounds,
				SA	Skin Surface Area	6,600	cm ²	EPA, 2001	DA-event (mg/cm ² -event) =
				tau-event	Lag time per event	Chemical Specific	hours/event	EPA, 2001	2 FA x Kp x CW x CF x SQRT((6 x tau-event x t-event)/pi)
				t-event	Event Duration	1	hours/event	EPA, 2001	or
				B	Ratio of permeability coefficient of a compound through the stratum corneum relative to its permeability coefficient across the viable epidermis	Chemical Specific	--	EPA, 2001	DA-event = FA x Kp x CW x ((t-event/(1 + B)) +
				EV	Event Frequency	1	events/day	EPA, 2001	2 x tau-event x ((1 + (3 x B) + (3 x B x B))/(1 + B) ²) and where for inorganic compounds,
				EF	Exposure Frequency	350	days/year	EPA, 2001	DA-event = Kp x CW x CF x t-event
				ED	Exposure Duration	6	years	EPA, 2001	
				CF	Volumetric Conversion Factor for Water	0.001	l/cm ³	--	
				BW	Body Weight	15	kg	EPA, 2001	
				AT-C	Averaging Time - Cancer	25,550	days	EPA, 2001	
				AT-N	Averaging Time - Non-Cancer	2,190	days	EPA, 2001	

EPA 1989a: Risk Assessment Guidance for Superfund. Volume 1: Human Health Evaluation Manual, Part A. OERR EPA/540/1-89/002.

EPA 1989b: Exposure Factors Handbook, July 1989, EPA/600/8-89/043.

EPA 1991: Risk Assessment Guidance for Superfund. Volume 1: Human Health Evaluation Manual - Supplemental Guidance, Standard Default Exposure Factors. Interim Final. OSWER 9285.6-03.

EPA 1992: Dermal Exposure Assessment: Principles and Applications. EPA/600/8-91/011B.

EPA 1997: Exposure Factors Handbook, Volume 1. EPA/600/P-95/002Fa.

EPA 2001: Risk Assessment Guidance for Superfund. Volume 1: Human Health Evaluation Manual (Part E, Supplemental Guidance for Dermal Risk Assessment) Interim.